

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In the Patent Application of

LAURENS WOLTERS

Serial No.: 10/604,582

Filed: July 31, 2003

For: ELECTRIC MOTOR WITH
EXTERNAL ROTOR

Group Art Unit: 3729

Examiner: Phan, Thiem D.

APPEAL BRIEF

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This is an Appeal Brief pursuant to 37 C.F.R. § 41.37 in support of Applicants' appeal of the Final Rejection of claims 12-20 by the Examiner, set forth in the Office Action mailed September 13, 2006. Each of the topics required by 37 C.F.R. § 41.37 is presented herewith and is labeled appropriately.

I. REAL PARTY IN INTEREST

NeoDrive LLC, a Michigan Limited Liability Company having offices in Grand Rapids, Michigan ("NeoDrive") is the real party in interest of the present application by assignment from Mol Belting Company, recorded in the U.S. Patent and Trademark Office at Reel 014393, Frame 0297. An assignment of all rights in the present application to Mol Belting Company was executed by the inventor and recorded in the U.S. Patent and Trademark Office at Reel 012877, Frame 0409.

II. RELATED APPEALS AND INTERFERENCES

There are no appeals or interferences related to the present application of which Appellant, Appellant's legal representatives, or Assignee are aware.

III. STATUS OF CLAIMS

The application has 9 claims, which are presented in the Appendix. Claims 1-11 have been canceled and claims 12-20 are currently pending. All of the claims have been twice rejected by the Examiner. Appellants hereby appeal the final rejection of claims 12-20.

IV. STATUS OF AMENDMENTS

Subsequent to the final Office Action mailed September 13, 2006, no amendments have been made to the claims.

V. SUMMARY OF CLAIMED SUBJECT MATTER

Claim 1¹ describes a method of forming a winding core for an electric motor of the type having an internal stator, with a shaft fixedly mounted to a structural support and having multiple windings capable of reversible current flow to alter the winding polarity, and an external rotor rotatably mounted relative to the shaft and having multiple magnets radially spaced about the periphery of the stator, with each of the magnets having at least one predetermined pole.

¹ 37 CFR §41.37(c)(1)(v) requires reference to the specification by page and line number. The Application was filed without line numbers, but included paragraph numbers. Thus, references are given by page number, paragraph number, and the line number of the referenced paragraph.

Application, ¶[47] through ¶[54], Figs. 2, 15. The method steps include providing a hollow cylindrical jig having at least one guide *Id.*, ¶[110], *ln.* 2; providing plates, each having a central opening, radial poles with caps at the end of each pole, and having a guide corresponding in shape to mate with the at least one guide in the jig *Id.*, ¶[110], *ln.* 2; providing a stop in the jig *Id.*, ¶[110], *ln.* 8; sliding each plate in the jig with the guide in the plate mating with the guide in the jig, and with the first plate bearing against the stop until a plurality of plates are disposed in the jig *Id.*, ¶[110], *ln.* 7; pressing a shaft into the central openings *Id.*, ¶[110], *ln.* 10; compressing the plates to form a lamination; and securing a lock nut on the shaft adjacent to the last plate to hold the lamination in compression *Id.*, ¶[111].

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

A. In the Office Action mailed September 13, 2006, the Examiner finally rejected Claims 12-20 as being unpatentable over US Patent No. 5,255,425 to Kanno in view of US Patent No. 6,122,817 to Meacham et al. under 35 U.S.C 103 (a). Appellants respectfully disagree with the Examiner's assertion that a combination of Kanno and Meacham et al. renders claims 12-20 obvious to one ordinarily skilled in the art.

VII. ARGUMENTS

A. Claims 12-20 are not obvious over Kanno in view of Meacham et al.

In a § 103 rejection, the Examiner has the initial burden of establishing a prima facie case of obviousness based upon the prior art references. *In re Fritch*, 23 U.S.P.Q.2d 1780 (Fed. Cir. 1992). "To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974)." M.P.E.P. § 2143.03. Accord. M.P.E.P. § 706.02(j). Obviousness is determined against a backdrop of determining the scope and content of the prior art, ascertaining the differences between the prior art and the claims, and resolving the level of ordinary skill in the art. *Graham*

v. John Deere Co. of Kansas City, 383 U.S. 1 (1966). Demonstrating that there is some teaching, suggestion, or motivation to combine prior art references can provide helpful insight into an obviousness determination. *KSR International, Inc. v. Teleflex, Inc.*, 550 U.S. ___ (2007). The showing of combinability, in whatever form, must be "clear and particular." *In re Dembiczak*, 175 F.3d 994, 50 USPQ 2d 1614 (Fed. Cir. 1999).

1. The alleged combination of Kanno and Meacham et al. would not have been made by one of ordinary skill in the art, thereby negating the basis for the rejection of claims 12-20.

The Kanno patent discloses a method of making a laminated core for an electric motor. Kanno intended to solve the problems associated with automating the known methods that had been difficult and costly as shown in Figs. 4-6. The method includes stamping a core sheet 42 in a progressive die 48. The stamping produces a core sheet 42 with a half cut die portion 54 where the through-hole is to be. After each partially formed core sheet is cut by the outer shape cutting punch 64, subsequently partially formed core sheets are nested on top to form a fitted-together stack (See Fig. 2B and Col. 5, ll. 15-24). Importantly, the Kanno patent teaches that further handling and automated conveyance are made possible by this stacking. (Col. 5, ll. 24-27). What the Examiner asserts to be a hollow cylindrical jig (2B, 74) is actually a die bushing (Col. 4, l. 61) for the outer shape cutting punch 66. Nothing in the Kanno patent implies that the die bushings have matching edge-fit notches or guides as asserted by the Examiner in the final office action. Also, it is believed that the process of forcing the shaft 44 through the half cut die portions 54 to form the laminated core does not occur in the die as suggested by the Examiner. Indeed, it could not because the outer shape cutting punch 66 would interfere with the shaft 44. Rather, the process of forming the core is shown in Fig. 4 of the Kanno patent where a plurality of core sheets are disposed in a stacked state in the magazine, whereupon the shaft is forced into the through-holes. (Col. 1, ll. 19-31). The Kanno patent shows no guides in the magazine. This must be the process for forming the lamination illustrated in Fig. 1C, which follows the die cutting process illustrated in Figs. 2A-2C.

The Meacham et al. patent discloses the concept of pre-compressing a lamination stack before inserting a shaft in the stack. But nothing in the Meacham et al. patent discloses or suggests guiding individual plates in a keyed fixture to assure proper alignment before compression.

The Examiner offers *no* rationale as to why one ordinarily skilled in the art would combine the teachings of the two references, much less one that is clear and particular. Nothing in the Kanno patent would lead one ordinarily skilled in the art to pre-compress the stack in the magazine before inserting the shaft. Kanno is concerned only with a method of making the core sheets so that they nest with the half-cut die portions in order to avoid later rotating and skewing problems when forcing the shaft through the sheets (Col. 1, ll. 35-40), or to avoid other production problems (Col. 2, ll. 25-36) unrelated to the compression. Conversely, nothing in the Meacham patent would lead one ordinarily skilled in the art to utilize the die cutting process with half-cut die portions as taught by the Kanno patent. With respect to the problems each references purports to solve, they are totally unrelated. Without any teaching, suggestion, motivation or other reason to make the alleged combination, one cannot say that the combination would have been obvious to one of ordinary skill in the art.

2. Even if tenable, the alleged combination of Kanno and Meacham et al. does not reach the invention of claims 12-20.

Neither the Kanno patent nor the Meacham patent teach at least one guide in the jig to align the sheets as they are stacked (claim 12), much less a guide that is an axial rib (claim 13), or one that is disposed at an angle to the longitudinal axis (claim 15). Kanno teaches die bushings 70, 72, and 74 provided in the die plate 58 so as to correspond to the slot hole cutting punch 60, the half die-cut punch 62, the through hole cutting punch 64 and the outer shape cutting punch 66. One of ordinary skill in the art can only guess whether a die bushing that corresponds to a punch has a guide that mates with a guide in the plate as claimed in claim 1. The Kanno patent is silent as to this claimed feature.

With respect to the Examiner's assertion that disposing the guide at an acute angle to the longitudinal axis is merely an obvious design choice, the reasons provided are inadequate. The stated reason is that Applicant has not disclosed any advantage or purpose of solution to a problem. With respect, it takes more to show obviousness. The burden is on the Examiner to provide some suggestion of the desirability of doing what the inventor has done. "To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the Examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985). That the Applicant did not state any advantage or purpose to his invention is not a convincing line of reasoning as to why artisan would have found the claimed invention to have been obvious in light of the teachings of the references. The Examiner must show some prior art that renders this element unpatentable or allow the claim.

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CONCLUSION

In view of the foregoing, it is submitted that the rejection of claims 1-16 and 18-30 is improper and should not be sustained. Therefore, a reversal of the rejections of claims 1-16 and 18-30 is respectfully requested.

Respectfully submitted,

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Date: May 10, 2007

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VIII. CLAIMS APPENDIX

1. Canceled
2. Canceled
3. Canceled
4. Canceled
5. Canceled
6. Canceled
7. Canceled
8. Canceled
9. Canceled
10. Canceled
11. Canceled
12. (Original) A method of forming a winding core for an electric motor of the type comprising an internal stator, including a shaft fixedly mounted to a structural support and having multiple windings capable of reversible current flow to alter the winding polarity, and an external rotor rotatably mounted relative to the shaft and having multiple magnets radially spaced about the periphery of the stator, with each of the magnets having at least one predetermined pole, comprising the steps of:

providing a hollow cylindrical jig having at least one guide;
providing plates, each having a central opening, radial poles with caps at the end of each pole,
and having a guide corresponding in shape to mate with the at least one guide in the jig;
providing a stop in the jig;
sliding each plate in the jig with the guide in the plate mating with the guide in the jig,
and with the first plate bearing against the stop until a plurality of plates are disposed in the jig;
pressing a shaft into the central openings;
compressing the plates to form a lamination; and
securing a lock nut on the shaft adjacent to the last plate to hold the lamination in
compression.

13. (Original) A method according to claim 12 wherein the guide in the jig is an axial rib and the guide in each plate is a notch.
14. (Original) A method according to claim 12 wherein a spacer is disposed at each end of the lamination.
15. (Original) A method according to claim 12 wherein the jig has a longitudinal axis and the guide on the jig is axially disposed at an acute angle relative to the longitudinal axis so that it is skewed in the jig.
16. (Original) A method according to claim 12 wherein the acute angle is 10°.
17. (Original) A method according to claim 12 wherein the compressing step and the pressing step occur simultaneously.
18. (Original) A method according to claim 12 wherein the lock nut is threaded onto the shaft with sufficient torque to hold the lamination in compression.
19. (Original) A method according to claim 12 and comprising the step of wrapping wire around the radial poles.

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20. (Original) A method according to claim 12 wherein the plates are compressed by a hydraulic press.

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IX. EVIDENCE APPENDIX

No evidence has been entered by the Examiner or Appellants into the record.

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X. RELATED PROCEEDINGS APPENDIX

There being no decision rendered by a court or the Board in any related proceeding, none is listed here.